

REMARKS

Claims 1-20 are currently pending. Applicants respectfully request reconsideration of the above-captioned application. The indication of allowable subject matter in claims 2, 7, 8 and 16 has been noted with appreciation. Claims 17-20 have been added to round out the scope of protection being sought and take a slightly different approach to claiming the invention.

35 U.S.C. §112, SECOND PARAGRAPH, COMPLIANCE

The Office Action includes a rejection of claims 1-16 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. This rejection is respectfully traversed.

With respect to the Office's objection to the phrase "an arbitrary plane" it should be noted that the cells were simply identified as being on a plane, the choice of what plane itself having nothing to do with the invention. Hence, the term "arbitrary". While sufficiently clear as originally presented, Applicants have no difficulty in removing the term found to be objectionable.

Applicants have not adopted the Office's suggestion of reciting that the cells are evenly disposed of on a planar surface insofar such as a structure corresponding to the "planar surface" is not immediately apparent to the undersigned.

It is not entirely clear as to why the term "hollow" has been found objectionable since it is a perfectly good term. As a compromise, however, the phrase has been changed to "hollow space", given the indication that the word "spacing" was preferred by the Examiner and the change does not affect the scope of the claim.

Finally, with respect to the term "predetermined" it should be noted that this term is not *per se* vague. It simply means "determined in advance." The phrase has been avoid, however, to accommodate the Office and because the above change does not affect the scope of the claims.

35 U.S.C. §102(e) AND 103 COMPLIANCE

The Office Action includes a rejection of claims 1, 6, 9-11 and 15 under 35 U.S.C. §102(e) as allegedly being anticipated by the Walsh patent (U.S. Patent No. 6,110,612), as evidenced in the Kordes et al. book extract (Kordes and Simader, Fuel Cells and Their Applications, VCH Publishers, Inc. New York, NY (USA), 2001, pages 72-76); a rejection of claims 3-5 and 12-14 under 35 U.S.C. §103(a) as allegedly being unpatentable over the Walsh patent in view of the Kordes et al. extract, and in further view of the Besmann et al. patent (U.S. Patent 6,037,073). These rejections are respectfully traversed.

The Walsh patent discloses a structure for common access and support of fuel cell stacks. The Walsh patent is primarily directed towards a structure 10, illustrated in Figures 1-9, which is to be placed between four fuel cell stacks 88-94, as illustrated in Figures 10 and 11. The only disclosure regarding the fuel cell stacks is found at column 2, line 54-65, where it is disclosed that the individual fuel cell has multiple, generally traverse extending layers assembled in a longitudinal direction. A fuel cell assembly or stack is disclosed as having layers with an extension in the periphery of the fuel cells and which have holes therethrough for alignment and formation of liquid manifolds. These manifolds

generally serve to distribute fluids in the stack. No details regarding the structure of these manifolds is otherwise offered.

As such, Applicants respectfully submit that the Walsh patent neither anticipates nor renders obvious the present invention.

Among the distinctions found between present claim 1 and the Walsh patent is that even if one were to assume that the structure 10 constituted the hollow space as recited in claim 1, it would nevertheless not meet the recitation of an "electrical connection member being positioned in the hollow space" as positively recited in claim 1. 96, 98

Additionally, the Walsh patent does not recite "a fuel flow stopper disposed at a portion at the part of the cathodes in the hollow space, the fuel flow stopper preventing fuel flowing at a portion at the part of the anodes in the hollow space from flowing toward the portion at the part of the cathodes in the hollow space." Because the cathodes and anodes do not actually enter in the structure 10 in the Walsh patent and there would be no reason or advantage for them to do so, it is believed that this recitation cannot be met.

Additionally, as recited in claim 1, the Walsh patent does not include "a sealing member for sealing the anodes of the cells and the portion of the hollow space corresponding to the anodes." Again, the anodes and cathodes do not enter and are not part of the structure 10 in the Walsh device.

Further, it does not appear that the electrical connection member of claim 1 reads on the connector of 86, 98 and 100 of the Walsh patent insofar as in the Walsh patent they electrically connect adjacent cell stacks rather than adjacent cells.

Similar language concerning these distinguishing features is found in each of the three independent claims 1, 9 and 17.

The comments regarding the "intermediate layer" at page 2 of the Office Action are not completely understood. As recited in claim 9, the "intermediate layer" is recited to be "provided with fuel supply and discharge means", which would not be met by simply stacking Walsh fuel cell stacks on top of one another.

With respect to dependent claim 6, for instance, there is no indication in the Walsh patent that it would have a plurality of channels for flow air on its bottom. It is noted that it is improper for one to assume that the Walsh patent would necessarily use the particular form of PEFCs shown in Figures 4-18 of the Kordes et al. book extract given that there are other forms of fuel cells. Even if one were to assume that the Kordes et al. fuel cell was used in the Walsh cell stacks, it is noted that the anode feed and the cathode feed are not on the bottom of a porous air contact member.

With respect to the Kordes et al. book extract, the undersigned was unable to locate direct support for the proposition that it would be inherent for the Walsh et al. patent to include porous carbon diffusion electrodes in contact with a Nafion membrane. Should the rejection be continued, the Examiner is respectfully requested to point to this specific support.

The Besmann et al. patent has been reviewed. It is noted that the Besmann et al. patent is not asserted as teaching features missing from the Walsh patent, as identified above. It does not cure the deficiencies of the rejection, as noted above. Further, it is not entirely clear as to how one might incorporate the Besmann et al. teachings and the Walsh

patent, but it appears that the Office is merely relying upon the Besmann et al. patent for teaching that diffusion members can be made of carbon-plastic composites. As such, the patentability of the presently pending independent claims, and therefore the claims dependent therefrom, is not called into question and the point will not be belabored. Other patentable distinctions undoubtably exist in the pending claims, but for sake of brevity these additional distinctions will not be separately addressed.

In light of the foregoing, Applicants respectfully request reconsideration and allowance of the above-captioned application. Should any residual issues exist, the Examiner is invited to contact the undersigned at the number listed below.

Respectfully submitted,

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Attachment to Amendment dated April 10, 2003

Mark-up of Claims

1. (Twice Amended) A fuel cell pack including a plurality of cells each having a membrane, and a cathode at one side of the membrane and an anode at another side of the membrane, collector plates contacting the cathode and the anode, respectively, in each cell, and an electrical connection member for electrically connecting adjacent cells, at least two cells being provided, the cells being evenly disposed [on an arbitrary] in a plane with a hollow space interposed between two adjacent cells, the electrical connection member being positioned in the hollow space, the fuel cell pack comprising:

a porous fuel diffusion member contacting the anode of each cell;

a porous air contact member contacting the cathode of each cell;

an anode end plate and a cathode end plate disposed at the side of the anodes of the cells and at the side of the cathodes of the cells, respectively[, for protecting the cells];

fuel supply and discharge means for supplying fuel toward the anodes in the hollow space and discharging the fuel;

a fuel flow stopper disposed at a portion at the part of the cathodes in the hollow space, the fuel flow stopper preventing fuel flowing at a portion at the part of the anodes in the hollow space from flowing toward the portion at the part of the cathodes in the hollow space; and

a sealing member for sealing the anodes of the cells and the portion of the hollow space corresponding to the anodes.

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2. (Amended) The fuel cell pack of claim 1, wherein a fuel inlet and a fuel outlet corresponding to the hollow space are disposed on the anode end plate [with a predetermined interval].

9. (Twice Amended) A fuel cell pack including a plurality of cells each having a membrane, a cathode at one side of the membrane and an anode at another side of the membrane, collector plates contacting the cathode and the anode, respectively, in each cell, and an electrical connection member for electrically connecting adjacent cells, at least two cells being provided, the cells being disposed on [both] opposite sides of an intermediate layer, which is provided with fuel supply and discharge means, with a hollow space of [predetermined] given volume interposed between two adjacent cells in the level direction of the intermediate layer, the electrical connection member being disposed in the hollow space, the anodes of the cells disposed on both sides of the intermediate layer contacting the intermediate layer, the fuel cell pack comprising:

a porous fuel diffusion member contacting the anode of each cell;

a porous air contact member contacting the cathode of each cell;

first and second end plates disposed at the respective sides of the cathodes of the cells[, for protecting the cells];

a fuel flow stopper disposed at a portion corresponding to the cathodes of adjacent cells in [a] the hollow space, the fuel flow stopper preventing fuel flowing at a portion at

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the part of the anodes in the hollow space from flowing toward the portion at the part of the cathodes in the hollow space; and

a sealing member for sealing the anodes of the cells and the portion of a hollow space corresponding to the anodes.

11. (Amended) The fuel cell pack of claim 9, wherein at least two cells are disposed on each of both sides of the intermediate layer, and a fuel inlet and a fuel outlet which correspond to [hollows] hollow spaces, respectively, between the cells are disposed in the intermediate layer at a predetermined interval.